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EXAMINER

GAUTHIER, GERALD

ART UNIT PAPER NUMBER

2645

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/847,256

Applicant(s)

JOSHUA BERS

Examiner

Gerald Gauthier

Art Unit

2645

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 20 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_.

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/26/2003 has been entered.

***Claim Objections***

2. **Claim 20** is objected to because of the following informalities: line "claim 19" should be "claim 16" since claim 19 is cancelled. Correction is required.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. **Claims 1-3, 5-6, 8 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt et al. (5,499,288) in view of Fisher et al. (6,535,600).

Regarding **claim 1**, Hunt discloses a simultaneous voice recognition and verification to allow access to telephone network services (column 1, lines 20-24), (which reads on claimed "an automated call routing system that routes a telephone call by responding to a routing objective of a calling party"), comprising:

a speech recognizer (48 on FIG. 2) that determines at least one phrase (column 4, line 20 "word spoken") from a speech utterance (column 4, line 21 "utterances") made by the calling party (12 on FIG. 1) and outputs a digital phrase (column 4, lines 18-27) [The voice recognition generates the digit word uttered by the speaker].

a topic identifier ( 50 on FIG. 2) that receives the digital phrase (column 3, line 40 "transformation data") and converts the digital phrase to at least one of a word stem (column 3, line 53 "one") and a word class (column 3, line 53 "class") and generates a topic output (column 5, lines 1-12) [The system uses the voice recognition on the caller to determine the entered password has a match].

Hunt fails to disclose a maximum benefit router.

However, Fisher teaches a maximum benefit router (140 on FIG. 1) that receives the topic output (column 5, line 47 "agent skill") and determines where to route the telephone call (column 5, line 46 "incoming calls") in order to optimize at least one predetermined parameter (column 5, line 51 "skills") the telephone call routed based on maximum benefit (column 5, lines 45-61) [The call vector program assigns incoming calls based upon the agent skill].

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use a maximum benefit router of Fisher in the invention of Hunt.

The modification of the invention will offer the capability of a maximum benefit router such as the system would allow access to the services more efficiently.

Regarding **claim 2**, Hunt and Fisher as applied to **claim 1** differ for **claim 2**, in that it fails to disclose the routing objective of the calling party according to call topics.

However, Fisher teaches wherein the maximum benefit router separates the routing objective of the calling party according to call topics (column 5, lines 45-61).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use the routing objective of the calling party according to call topics of Fisher in the invention.

The modification of the invention will offer the capability of the routing objective of the calling party according to call topics such as the system would use the right agent skill.

Regarding **claim 3**, Hunt and Fisher as applied to **claim 1** differ for **claim 3**, in that it fails to disclose separating the routing objective of the calling party from a second objective of a call center.

However, Fisher teaches wherein the maximum benefit router separates the routing objective of the calling party from a second objective of a call center (column 6, lines 3-15).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use separating the routing objective of the calling party from a second objective of a call center of Fisher in the invention.

The modification of the invention will offer the capability of separating the routing objective of the calling party from a second objective of a call center such as the system would use the right agent skill.

Regarding **claim 5**, Hunt and Fisher as applied to **claim 1** differ for **claim 5**, in that it fails to disclose having at least one routing destination and at least one caller topic.

However, Fisher teaches a benefit matrix as input to the maximum benefit router, the benefit matrix having at least one routing destination and at least one caller topic (column 5, lines 45-61).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use having at least one routing destination and at least one caller topic of Fisher in the invention.

The modification of the invention will offer the capability of having at least one routing destination and at least one caller topic such as the system would use the right agent skill.

Regarding **claim 6**, Hunt and Fisher as applied to **claim 1** differ for **claim 6**, in that it fails to disclose the topic identifier generates a topic likelihood vector.

However, Fisher teaches wherein the topic identifier generates a topic likelihood vector that is input to the maximum benefit router (column 5, lines 45-61).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use the topic identifier generates a topic likelihood vector of Fisher in the invention.

The modification of the invention will offer the capability of the topic identifier generates a topic likelihood vector such as the system would use the right agent skill.

Regarding **claim 8**, Hunt and Fisher as applied to **claim 1** differ for **claim 8**, in that it fails to disclose routing the telephone call to a first call center based upon optimized response quality.

However, Fisher teaches wherein the maximum benefit router routes the telephone call to a first call center based upon optimized response quality (column 5, lines 45-61).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use routing the telephone call to a first call center based upon optimized response quality of Fisher in the invention.

The modification of the invention will offer the capability of routing the telephone call to a first call center based upon optimized response quality such as the system would use the right agent skill.

Regarding **claim 14**, Hunt discloses a simultaneous voice recognition and verification to allow access to telephone network services (column 1, lines 20-24), (which reads on claimed "an automated call routing system that routes a telephone call by responding to a routing objective of a calling party"), comprising:

a recognizer (48 on FIG. 2) that determines at least one phrase (column 4, line 20 "word spoken") made by the calling party (12 on FIG. 1) and outputs a second phrase (column 4, lines 18-27) [The voice recognition generates the digit word uttered by the speaker];

a topic identifier ( 50 on FIG. 2) that receives the second phrase (column 3, line 40 "transformation data") and converts the second phrase to at least one of a word stem (column 3, line 53 "one") and a word class (column 3, line 53 "class") and generates a topic output (column 5, lines 1-12) [The system uses the voice recognition on the caller to determine the entered password has a match].

Hunt fails to disclose a maximum benefit router.



However, Fisher teaches a maximum benefit router (140 on FIG. 1) that receives the topic output (column 5, line 47 "agent skill") and determines where to route the call (column 5, line 46 "incoming calls") in order to optimize at least one predetermined parameter (column 5, line 51 "skills") the telephone call routed based on maximum benefit (column 5, lines 45-61) [The call vector program assigns incoming calls based upon the agent skill].

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use a maximum benefit router of Fisher in the invention of Hunt.

The modification of the invention will offer the capability of a maximum benefit router such as the system would allow access to the services more efficiently.

6. **Claims 4, 7 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt in view of Fisher and in further view of Carpenter et al. (US 6,269,153).

Regarding **claim 4**, Hunt and Fisher as applied to **claim 1** differ for **claim 4**, in that it fails to disclose an  $m \times n$  benefit matrix.

However, Carpenter teaches wherein the at least one predetermined parameter is selected from an  $m \times n$  benefit matrix having  $m$  routing destinations and  $n$  caller topics (column 4, lines 37-53).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use an  $m \times n$  benefit matrix of Carpenter in the invention Hunt and Fisher.

The modification of the invention will offer the capability of an  $m \times n$  benefit matrix such as the system would use a vector to route the call.

Regarding **claim 7**, Hunt, Fisher and Carpenter as applied to **claim 4** differ for **claim 7**, in that it fails to disclose routing the call to a first destination based upon a first caller topic.

However, Carpenter teaches wherein entries in the benefit matrix define the benefit in seconds of agent time saved by routing the call to a first destination based upon a first caller topic (column 2, lines 56-65).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use routing the call to a first destination based upon a first caller topic of Carpenter in the invention.

The modification of the invention will offer the capability of routing the call to a first destination based upon a first caller topic such as the system would use a vector to route the call.

Regarding **claim 15**, Hunt and Fisher as applied to **claim 14** differ for **claim 15**, in that it fails to disclose the call can be one of a telephone call.

However, Carpenter teaches wherein the call can be one of a telephone call (column 3, lines 42-63).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use the call can be one of a telephone call of Carpenter in the invention Hunt and Fisher.

The modification of the invention will offer the capability of the call can be one of a telephone call such as the system would use a vector to route the call.

7. **Claims 9 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt in view of Fisher and in further view of Zhao (US 5,794,192).

Regarding **claim 9**, Hunt and Fisher as applied to **claim 1** above differ from **claim 9** in that it fails to disclose using Bayesian decision theory.

However, Zhao teaches wherein the maximum benefit router optimizes at least one predetermined parameter using Bayesian decision theory and determining minimum overall risk (column 5, lines 3-14).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use Bayesian decision theory of Zhao in the invention of Hunt and Fisher.

The modification of the invention will offer the capability of using Bayesian decision theory such as the routing will be more efficient.

Regarding **claim 10**, Hunt, Fisher and Zhao as applied to **claim 9** above differ from **claim 10** in that it fails to disclose the minimum overall risk is the maximum benefit.

However, Fisher teaches wherein the minimum overall risk is the maximum benefit (column 7, lines 30-40).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use the minimum overall risk is the maximum benefit of Fisher in the invention.

The modification of the invention will offer the capability of the minimum overall risk is the maximum benefit such as the routing will be more efficient.

8. **Claims 11 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt in view of Fisher and in further view of Parthasarathy et al. (US 6,233,555).

Regarding **claim 11**, Hunt and Fisher as applied to **claim 1** above differ from **claim 11** in that it fails to disclose the speech recognizer is a spoken language-understanding device.

However, Parthasarathy teaches wherein the speech recognizer is a spoken language-understanding device (column 2, lines 45-50).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use the speech recognizer is a spoken language-understanding device of Parthasarathy in the invention of Hunt and Fisher.

The modification of the invention will offer the capability of the speech recognizer is a spoken language-understanding device such as the routing will be more efficient.

Regarding **claim 16**, Hunt discloses a simultaneous voice recognition and verification to allow access to telephone network services (column 1, lines 20-24), (which reads on claimed "a method for automatically routing a telephone call"), comprising the steps of:

receiving a telephone call (column 4, line 53 "a call") from a caller (column 4, lines 52-56);

determining phrases (column 4, line 20 "word spoken") from speech utterances (column 4, line 21 "utterances") by a caller (column 4, lines 18-27) [The voice recognition generates the digit word uttered by the speaker];

inputting the determined phrases to a speech recognizer device (column 4, lines 63-67);

converting the recognized determined phrases into at least one of word stems (column 3, line 53 "one") and word classes (column 3, lines 51-56) [The voice recognition class reference includes a representation for each digit];

performing keyword look up on the one of word stems and word classes (column 5, lines 1-12) [The system uses the voice verification to perform voice verification on the caller];

generating a feature vector (column 6, line 16 "parameter data vector") that contains the number of times the at least one word stems and word classes were found in the determined phrase (column 6, lines 11-16) [The voice recognition generates a parameter data vector for each digit];

performing analysis on the feature vector (column 6, lines 16-22).

Hunt fails to disclose using maximum benefit routing.

However, Fisher teaches a maximum benefit router (140 on FIG. 1) that receives the topic output (column 5, line 47 "agent skill") and determines where to route the call (column 5, line 46 "incoming calls") in order to optimize at least one predetermined parameter (column 5, line 51 "skills") the telephone call routed based on maximum

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benefit (column 5, lines 45-61) [The call vector program assigns incoming calls based upon the agent skill].

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use a maximum benefit router of Fisher in the invention of Hunt.

The modification of the invention will offer the capability of a maximum benefit router such as the system would allow access to the services more efficiently.

Hunt and Fisher fail to disclose the posterior possibilities vector.

However, Parthasarathy teaches outputting a posterior possibilities vector (column 6, lines 50-52);

inputting the posterior possibilities vector (column 6, line 53 "posterior") and determining the expected call of a predetermined destination (column 6, lines 52-58); and

outputting a benefit sorted vector of destinations, benefits and topic scores (column 6, lines 3-12).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use the posterior possibilities vector of Parthasarathy in the invention of Hunt and Fisher.

The modification of the invention will offer the capability of the posterior possibilities vector such as the system would output the parameters for each speaker.

9. **Claims 12 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt in view of Fisher and in further view of Cohen (US 6,295,533).

Regarding **claim 12**, Hunt and Fisher as applied to **claim 1** above differ from **claim 12** in that it fails to disclose a stemming algorithm.

However, Cohen teaches the topic identifier further comprising a stemming algorithm (column 15, lines 38-49).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use a stemming algorithm of Cohen in the invention of Hunt and Fisher.

The modification of the invention will offer the capability of routing the call such as the routing will be more efficient.

Regarding **claim 13**, Hunt, Fisher and Cohen as applied to **claim 12** above differ from **claim 13** in that it fails to disclose a Porter stemming algorithm.

However, Cohen teaches wherein the stemming algorithm is Porter Stemming (column 15, lines 38-49).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use a Porter stemming algorithm of Cohen in the invention.

The modification of the invention will offer the capability of routing the call such as the routing will be more efficient.



10. **Claim 17** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt in view of Fisher, in view of Parthasarathy and in further view of McDonough et al. (US 5,625,748).

Regarding **claim 17**, Hunt, Fisher and Parthasarathy as applied to **claim 16** above differ from **claim 17** in that it fails to disclose the feature vector using one of a multinomial model.

However, McDonough teaches the analysis is performed on the feature vector using one of a multinomial model, a generalized linear model and a support vector machine (column 9, lines 22-52).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use the feature vector using one of a multinomial model of McDonough in the invention of Hunt, Fisher and Parthasarathy.

The modification of the invention will offer the capability of the feature vector using one of a multinomial model such as the routing will be more efficient.

11. **Claim 18** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt in view of Fisher, in view of Parthasarathy, in view of McDonough and in further view of Carpenter.

Regarding **claim 18**, Hunt, Fisher, Parthasarathy and McDonough as applied to **claim 17** above differ from **claim 18** in that it fails to disclose a vector of scores for topics.

However, Carpenter teaches the vector is a vector of scores for topics, each score representing confidence that the determined phrase is related to a predetermined topic and vector size is the number of topics (column 5, lines 39-63).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use a vector of scores for topics of Carpenter in the invention of Hunt, Fisher, Parthasarathy and McDonough.

The modification of the invention will offer the capability of a vector of scores for topics such as the routing will be more efficient.

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12. **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt in view of Fisher, in view of Parthasarathy and in further view of Carpenter.

Regarding **claim 20**, Hunt, Fisher and Parthasarathy as applied to **claim 16** above differ from **claim 20** in that it fails to disclose a top-ranking destination.

However, Carpenter teaches determining whether to route the call to a top-ranking destination or to reject the utterance if the topic score and/or benefit falls below a predetermined threshold (column 5, lines 50-63).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use a top-ranking destination of Carpenter in the invention of Hunt, Fisher and Parthasarathy.

The modification of the invention will offer the capability of a top-ranking destination such as the routing will be more efficient.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Burges is cited for discriminate Gaussian mixture models (FIG. 1).

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gerald Gauthier whose telephone number is (703) 305-0981. The examiner can normally be reached on 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on (703) 305-4895. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4750.

  
g.g.

April 17, 2003

FAN TSANG  
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